

IN THE CLAIMS

Please amend the claims as follows:

Claim 1 (Currently Amended): A time slot synchronizer, comprising:

a sampler configured to:

successively sample a baseband signal comprising a plurality of frames, each frame comprising a plurality of symbols[[]],

divide each symbol into a plurality of ~~sample bins~~; time intervals,

generate a first sample group from a first frame by sampling each symbol in the first frame ~~in a first and second sample bin~~; during a first time interval and a second time interval, the first time interval and the second time interval being offset from a start of the symbol by a first amount of time and a second amount of time, respectively, and

generate a second sample group from a second frame by sampling each symbol in the second frame ~~in a third and fourth sample bin, the third and fourth sample bins being shifted a certain number of sample bins relative to the first and second sample bins~~ during a third time interval and a fourth time interval, the third time interval and the fourth time interval being offset from a start of the symbol of the second frame by a third amount of time and a forth amount of time, respectively, and the first and second amounts of time being different from the third and fourth amounts of time, respectively;

a correlator configured to correlate the first and second groups of samples with a stored sync word in order to generate a final correlation estimate[[]]; and

a comparator configured to compare the final correlation estimate to a correlation threshold.

Claim 2 (Currently Amended): The synchronizer of claim 1, wherein the total number of ~~sample bins~~ time intervals in each symbol is eight.

Claim 3 (Currently Amended): The synchronizer of claim 1, wherein the third and fourth ~~sample bins~~ time intervals are shifted two ~~sample bins~~ time intervals relative to the first and second ~~sample bins~~ time intervals, respectively.

Claim 4 (Original): The synchronizer of claim 1, wherein each frame comprises 486 symbols.

Claim 5 (Currently Amended): The synchronizer of claim 1, wherein each frame is divided into a plurality of time slots, ~~there being a sync word at the beginning of each time slot~~ has a sync word, and wherein the correlation with the stored sync word only occurs for the samples generated from the sync words at the beginning of each time slot.

Claim 6 (Original): The synchronizer of claim 5, wherein each sync word comprises 14 symbols.

Claim 7 (Original): The synchronizer of claim 5, wherein each frame comprises six time slots.

Claim 8 (Currently Amended): The synchronizer of claim 1, wherein the sampler is configured to generate a first sample group series from a first plurality of frames that includes the first frame by sampling each frame in the first plurality of frames ~~[[using]]~~ during the first and second ~~sample bins~~ time intervals, ~~[[and]]~~ wherein the correlator is configured to

generate a first correlation estimate comprising ~~[[the]]~~ an average correlation estimate for each frame in the first plurality of frames, and wherein the comparator is configured to use the first correlation estimate to generate the final correlation estimate.

Claim 9 (Currently Amended): The synchronizer of claim 1, wherein the sampler is configured to generate a second sample group series from a second plurality of frames that includes the second frame by sampling each frame in the second plurality of frames ~~[[using]]~~ during the third and fourth ~~sample bins~~ time intervals, ~~[[and]]~~ wherein the correlator is configured to generate a second correlation estimate comprising ~~[[the]]~~ an average correlation estimate for each frame in the second plurality of frames, and wherein the comparator is configured to use the second correlation estimate to generate the final correlation estimate.

Claim 10 (Currently Amended): A mobile station, comprising:
a receiver ~~for receiving~~ configured to receive a signal;
a demodulator coupled to the receiver, the demodulator configured to take the signal and to generate a baseband signal comprising a plurality of frames, each frame comprising a plurality of symbols; ~~[[and]]~~

a sampler configured to successively sample the baseband signal by:

dividing each symbol into a plurality of ~~sample bins~~; time intervals,

generating a first sample group from a first frame by sampling each symbol in the first frame ~~in a first and second sample bin~~; during a first time interval and a second time interval, the first time interval and the second time interval being offset from a start of the symbol by a first amount of time and a second amount of time, respectively, and

generating a second sample group from a second frame by sampling each symbol in the second frame ~~in a third and fourth sample bin, the third and fourth sample bins being shifted a certain number of sample bins relative to the first and second sample bins~~, during a third time interval and a fourth time interval, the third time interval and the fourth time interval being offset from a start of the symbol of the second frame by a third amount of time and a forth amount of time, respectively, and the first and second amounts of time being different from the third and fourth amounts of time, respectively;

a correlator configured to correlate the first and second groups of samples with a stored sync word in order to generate a final correlation estimate[[,]]; and

a comparator ~~for comparing~~ configured to compare the final correlation estimate to a correlation threshold.

Claim 11 (Currently Amended): The mobile station of claim 10, wherein each frame is divided into a plurality of time slots, ~~there being a sync word at the beginning of each time slot~~ has a sync word, and wherein the correlation with the stored sync word only occurs for the samples generated from the sync words at the beginning of each time slot.

Claim 12 (Currently Amended): The mobile station of claim 10, wherein the sampler is configured to generate a first sample group series from a first plurality of frames that includes the first frame by sampling each frame in the first plurality of frames [[using]] during the first and second sample bins time intervals, [[and]] wherein the correlator is configured to generate a first correlation estimate comprising [[the]] an average correlation estimate for each frame in the first plurality of frames, and wherein the comparator is configured to use the first correlation estimate to generate the final correlation estimate.

Claim 13 (Currently Amended): The ~~synchronizer~~ mobile station of claim 10, wherein the sampler is configured to generate a second sample group series from a second plurality of frames that includes the second frame by sampling each frame in the second plurality of frames ~~[[using]]~~ during the third and fourth sample bins time intervals, ~~[[and]]~~ wherein the correlator is configured to generate a second correlation estimate comprising ~~[[the]]~~ an average correlation estimate for each frame in the second plurality of frames, and wherein the comparator is configured to use the second correlation estimate to generate the final correlation estimate.

Claim 14 (Currently Amended): The ~~receiver~~ mobile station of claim 10, wherein the receiver is configured to look for a different signal when the correlation estimate does not exceed the correlation threshold.

Claim 15 (Currently Amended): A method for time slot synchronization using a sampler configured to successively sample a baseband signal comprising a plurality of frames, each frame comprising a plurality of symbols, the method comprising:
dividing each symbol into a plurality of ~~sample bins~~ time intervals;
generating a first sample group from a first frame by sampling each symbol in the first frame ~~in a first and second sample bin~~ during a first time interval and a second time interval, the first time interval and the second time interval being offset from a start of the symbol by a first amount of time and a second amount of time, respectively;

generating a second sample group from a second frame by sampling each symbol in the second frame ~~in a third and fourth sample bin, the third and fourth sample bins being shifted a certain number of sample bins relative to the first and second sample bins~~ during a

third time interval and a fourth time interval, the third time interval and the fourth time interval being offset from a start of the symbol by a third amount of time and a forth amount of time, respectively, and the first and second amounts of time being different from the third and fourth amounts of time, respectively;

correlating the first and second groups of samples with a stored sync word in order to generate a final correlation estimate; and

comparing the final correlation estimate to a ~~final~~ correlation threshold.

Claim 16 (Currently Amended): The method of claim 15, wherein each frame is divided into a plurality of time slots, ~~there being a sync word at the beginning of each time slot~~ has a sync word, and wherein the correlation with the stored sync word only occurs for the samples generated from the sync words at the beginning of each time slot.

Claim 17 (Currently Amended): The method of claim 15, comprising:

generating a first sample group series from a first plurality of frames that includes the first frame by sampling each frame in the first plurality of frames ~~[[using]]~~ during the first and second ~~sample bins~~ time intervals;

generating a first correlation estimate comprising ~~[[the]]~~ an average correlation estimate for each frame in the first plurality of frames; and

using the first correlation estimate to generate the final correlation estimate.

Claim 18 (Currently Amended): The method of claim ~~[[13]]~~ 15, comprising:

generating a second sample group series from a second plurality of frames that includes the second frame by sampling each frame in the second plurality of frames ~~[[using]]~~ during the third and fourth ~~sample bins~~ time intervals;

generating a second correlation estimate comprising ~~[[the]]~~ an average correlation estimate for each frame in the second plurality of frames; and

using the second correlation estimate to generate the final correlation estimate.